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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/525,818

02/25/2005

Tatsuya Maruo

0171-1184US1

9190

2292 7590 01/16/2009
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EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

01/16/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/525,818	Applicant(s) MARUO ET AL.	
	Examiner Jonathan Crepeau	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6 and 9-11 is/are allowed.
- 6) ☒ Claim(s) 7, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-7 and 9-13. Claims 1-6 and 9-11 are allowed. Claim 7 is newly rejected under 35 USC 112, second paragraph. Claims 12 and 13 are newly rejected under 35 USC 103; however this rejection was not necessitated by amendment. Accordingly, this action is non-final.

Terminal Disclaimer

2. The terminal disclaimers filed on 10/6/08 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patents 7,297,289, 7,154,737, 7,347,954, 7,167,353 and U.S. Serial No. 11/537,269 have been reviewed and are accepted. The terminal disclaimers have been recorded.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the limitation "the letter n" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/076924 in view of Takekawa et al (U.S. Pre-Grant Publication No. 2002/0081485). Sato (U.S. Patent 7,297,289) is taken as an English language equivalent of WO '924 herein.

Sato '289 discloses an electrolyte comprising an ionic liquid having the chemical structure recited in instant claim 1 (see col. 3, line 40). Further, a secondary battery containing the electrolyte is disclosed (see col. 5, line 49). The electrolyte contains ethylene carbonate or propylene carbonate, which is the "compound" of instant claim 1, and a lithium salt (see col. 5, line 12; col. 12, line 4). The ionic liquid has a melting point not higher than 25 degrees C.

Sato further teaches an embodiment of a capacitor comprising a cellulose separator having a thickness of 0.35 mm (see col. 31, line 22), and also teaches an embodiment of a battery comprising a polyolefin porous separator (see col. 32, line 52). However, Sato does not expressly teach that the battery comprises a cellulose separator having a thickness of 20-50 microns and a porosity of 25-85%, as recited in claims 12 and 13.

In [0069], Takekawa et al. teach a lithium secondary battery comprising a cellulose separator.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Takekawa et al. identify cellulose, polyethylene, and polypropylene as being suitable separator materials. Therefore the skilled artisan may ascertain that cellulose would function as an equivalent of PE or PP when used in a lithium battery. Further, regarding the claimed ranges of thickness and porosity, Sato teaches a capacitor separator thickness of 35 microns. Accordingly, the skilled artisan would ascertain that this would be an appropriate thickness for a battery separator. Further, regarding the claimed porosity, it is known that porosity of a separator may be optimized to affect the rate of ion mobility and the strength. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Note: The translation of the priority document has been reviewed but is only believed to support pending claims 1-7 and 9-11 in the manner required by 35 USC 112 first paragraph. Thus, claims 12 and 13 are accorded a filing date of 8/22/03, and the WO '924 reference still qualifies as prior art against these claims.

Allowable Subject Matter

7. Claims 1-6 and 9-11 are allowed.
8. Claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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9. The following is a statement of reasons for the indication of allowable subject matter:

Applicant's arguments filed October 6, 2008 are persuasive (in particular, arguments spanning bottom of page 6 and all of page 7) and claim 1 is considered to be distinguished over Matsumoto et al. Further, the submission of the priority document translation is sufficient to obviate the rejection of claims 1-7 and 9-11 over WO '924.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
January 14, 2009